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ABSTRACT

This document is a collection of articles on various subjects in education. "Aspects of a Bilingual Classroom" includes considerations of the function of self-confidence and the nature of the curriculum in a classroom with bilingual students. "Learning to Read" discusses reading instruction from the point of view of child development, with special consideration given to the teacher's role. "A Process Insignificant and Long Known" is taken from Tolstoy's writings on education. "Game is a Verb" and "Math Games" concern the use of games in classroom instruction. The last section is devoted to book reviews. (JA)

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Notes From Workshop Center for Open Education

March 1973

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Growth is not like a railroad train running on a track. The curriculum does not get there; growth is the process and the curriculum is something that

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About this publication

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Letter from the director

Notes, in this issue, features a discussion of continuing concern, language development, both in terms of its own importance to children's growth and its relationship to the problem of learning to read. In the development of the Open Corridor, language problems engaged us more sharply than other matters because our "space" for change has been constrained at all times by the natural anxiety of parents and teachers about reading. In fact, these anxieties and the pressures that result from them have increased. In any case, we based our critique of language development on the inadequacy and sterility of language and reading support in the old traditional classroom. Language development, we reasoned, could not be fostered in an atmosphere that discouraged spontaneity in language use, discouraged social interchange, discouraged communication, and discouraged experience that called forth expanded language to give it a name and express its quality. Nor could we foster reading by repetitious drill entirely divorced from meaning. We had to create a language environment. In fact, it proved easier to create the setting than to effect the teacher's conscious use of it.

The anxiety to "produce" success and the pressure on the teacher to use specific techniques were often greater than could be countered, even by the clear evidence that past use of these methods had been unsuccessful. Teachers continued, and continue, to use isolated-skill techniques, even though in the Open Corridor they were working in an environment that in many incidental ways had expanded the supports for language development. In order to cut into this anxiety and manner in which teachers hoarded time for reading, and in order to get them to use the freedom the new setting made possible, we had to help teachers understand the relationship of aspects of program that were not specifically reading but which *related* to its development. These aspects included dramatization, representation, and movement. We found that a teacher would make time for these things, but only if she saw that the symbolic development expressed in language and in reading was inextricably related to both. The teacher had to realize that the classroom that lacked opportunities to dramatize and to represent is weak in support of symbolic development and weak

in support of reading.

We could lead the teachers neither to additional changes nor to a maximal and conscious utilization of the possibilities in the setting of language development without further exploring with them the processes of language development. Additional change was dependent on making new inroads into teachers' understanding. In fact, we had to stretch our own understanding before we could support the same in teachers. It was in this context that our advisory sessions with Vera John, Courtney Cazden, and Pat Carini focused on language development. Almost incidental to this focus, we deepened our understanding of the extensions and connectedness of learning and began to consider curriculum. But at all times our major focus was on language development.

We studied language in order to become conscious of the children's pre-school language development fostered by the mother's pattern, as Cazden describes it, of "frequent bypassing" -- where a mother confirms the sense and intent of communication without trying to correct it or pressure her child to produce. We wanted our work to be in continuity with that early development. We saw how, as a positive school contribution, we could meet a child's need to have his language accepted as it was, while still conveying the additional need to make explicit his meaning. Our Open Corridor communities, where people are doing different things and where different adults are present, could support both needs, but its possibilities had to be used consciously.

Our setting encouraged repetition and stimulated children to explicate because, not having a whole-class organization, there were people who did not know what children were doing and the children had to explain. Our setting also provided children with the opportunity for spontaneous rehearsal without pressure to produce because children were allowed to relate to each other, or talk to animals, or to act. The advisor had to be conscious of these possibilities, however, in order to help the teacher see what could be done. Whatever language activities were available in this organizational framework — dramatization, expression, representation, rehearsal -- activities stressed by Courtney Cazden and Vera John as supportive of language development, had to be used consciously and with special attention to their impact on the children who most needed support.

This stretch in our understanding, we felt,

was the necessary preliminary for supporting teachers in creating a supportive language environment, which had never been permitted by the pressure of formal schooling. The teacher can now make special provision for talk with a few children; she can suggest that a procedure be explicated for this teacher or those children who have not been part of the process; she can arrange an environment that encourages dramatization, rehearsal, representation. She can bring to these arrangements all the understanding of language development that she has gained, and she can use the flexible organization possible to our classrooms on the open corridor to create supports for whatever reading skills a child needs.

Even though the formal pressure for a drill focus on reading continues, teachers are persisting with their efforts to approach reading flexibly, bulwarked by the reminder that massive failure on tests preceded our work and that focus on drill in traditional classrooms did not help children do well on these tests. Thus this deepening of understanding, shared with the teacher, creates the base for the teacher's development of her own reading supports and her own assessment of reading skills. Both developments may enable the teacher to break through the box that the system has placed her in and which now makes it almost impossible for her to use her intelligence in support of the total communication process.

With this statement and the article and two excerpts that follow, we join a discussion that has been deepening over time, that can only be deepened further, and that really will never be ended as long as we search for ways of supporting children's growth.

Lillian Weber

Aspects of a bilingual classroom

Vera John

The following was given as a talk to the City College Advisory Service for Open Corridors last spring.

Very often when we wish to set up a bilingual, bicultural classroom we raise all kinds of historical questions about the meaning of a person's identity. These questions are certainly very meaningful for college and high school students for whom the whole notion of having a continuity and a cultural tradition becomes a solid source of strength. But for a young child the question of what it is to be, say, Puerto Rican, very often has something to do with his own parents, his own family coping with the transition from one culture to another. It is this coping of which he is a part and in the course of which he is very often pushed into premature adulthood that may be the focus of his most personal concerns. It is around these concerns that we may be able to find acting, communicating, and speaking situations where a child can work through things he has not quite been able to deal with or about which he might like to learn more and, particularly, to *talk* more to his peers.

For a young child, the experience of being exposed to language, of being able to focus joyfully on language in small groups and to participate productively, is, I am convinced, the true means of his becoming a competent speaker. It then follows that the way in which anything related to his native language is presented to a child is going to be the foundation of his own feeling about that language. Particularly where there is language confusion and language conflict, the way in which language opportunities are presented in their native language will be exceedingly important in determining when and how children may want to move into the second language.

Children learn or develop their language skills in

specific settings related to activities. For those children who may be self-conscious about their language, such skills are most likely to be developed when activity and language are closely interwoven so that they have a chance to hear language as they are doing things and then, perhaps, a chance to talk about what they have been doing. This is true of young children in general; it is particularly true of young children who may have been exposed to two languages. The teacher must learn how to choose from among existing tales or cooking experiences or little skits of any kind in order to illustrate a situation that a child has been exposed to and that may help a child deal with feelings or ideas.

Take, for example, the most obvious situation for children raised in a warm climate -- the cold weather. This is a topic or theme around which you can relate language activities in many, many ways; in doll play, or in role-playing the sniffles and having to go to the doctor, or in conversation about home remedies. Since the experience is quite commonly shared, you can tie language with activities that are likely to bring forth some kind of reaction or feeling that a child has from his life, having made the transition either himself or through his parents, from one way of living to another. We cannot emphasize enough the necessity to develop language skills in those contexts or settings in which a child can both act and speak, act as well as hear.

Bilingual education, because it has grown out of a concern for the educational achievement and adjustment of non-English speaking children, is exceedingly achievement-and cognition-oriented. Thus, the bulk of what we have produced in bilingual education has been learning materials in Spanish that are more or less translations of learning materials in English. As a result, a major controversy has arisen: Is bilingual education merely a Spanish version of an education about which many of us already have questions, or can bilingual education offer an opportunity for active, participatory learning on the part of an individual child, which is the hallmark of informal education? What is true bilingual education, what is its purpose, how should it be developed? These are the questions we should be thinking about.

For an answer to what bilingual education is about, we need to raise another question, "From whom do children learn to speak?" Courtney Cazden speaks of the paradox that while kids pick up new languages in the street very easily, they have a great deal of difficulty picking them up inside the classroom.

In most of the things we have done thus far we have made available to the teacher mainly teacher-directed and teacher-centered materials. We have given very little thought to how to implement this vital piece of knowledge. How can we proceed to strengthen peer interaction in an informal classroom where children will get a chance to listen more to the spontaneous language, as well as listen more to, and practice, a second language? To me the true hallmark of the eventual success of bilingual education will be in the answers we can develop to that question.

THE FUNCTION OF SELF-CONFIDENCE

A number of problems are related to how you learn a second language. One is how you feel about yourself as a speaker of your first language. If you have had negative experiences speaking your own language, then you become a non-speaker or someone who speaks very, very infrequently; the spontaneous and free rehearsal of either your native language or your second language is self-inhibited, not even other-inhibited. The one thing we know is that the more children use their own language in situations where they do not feel they are being observed or being judged, the more language they acquire.

Language development really is not all that different from what we know about other areas of development; that is, self-rehearsal and working through something new on your own is important for language too, even though the true purpose of it will be eventually to communicate. We have taped children in many situations where they are more or less solitary -- whether it is in the bathtub or as they are falling asleep or when they are in a dark corner -- and we find that children act out adult roles, act out whole dialogues in settings where nobody interferes with this practice or rehearsal. If you feel uncomfortable about yourself because somebody has made fun of your language, and you have also been in some way strongly oriented to being a passive listener (for example, you have limitless television but limited opportunity to relate verbally with a variety of adults with whom you have a strong emotional bond), then there may be a lessening of this spontaneous rehearsal of language even in situations of solitary play. Spontaneous rehearsal is a substantial source of continuous growth.

One of the things we have learned about second-language acquisition by children from highly advantaged backgrounds is that these children do learn to mimic and produce accurately the sounds of a second language

because they have developed a great amount of confidence in themselves as speakers and they enjoy speaking situations. But if you feel that talking is something you have to be shy about and uncomfortable about, then you won't naturally focus on speaking situations either in your native or your second language. Statistics on upper middle class English-speaking Canadian children reveal that they have learned French very fast and very effectively and that their French and English development both for speaking and for reading is impressively high. Here the schools are capitalizing on a situation where these children, who are after all sons and daughters of the "important" people in Canada, are given a chance to do something new and exciting that other monolingual English children do not get a chance to do -- they are learning in French. Under these circumstances the natural skill of children to produce a great variety of sounds is developed and expanded. With their language production organs still pliant and flexible, young children are readily able to produce, for example, a different "r" or to place the tongue in positions other than those their native language employs. A note of caution, however, should be inserted at this point. We have in a way created a whole mythology based on that capacity to produce and reproduce foreign sounds effectively in the early years before adolescence. We have decided, in effect, that in order to develop confident foreign-language speakers we should start teaching them very young. But that is a generalization that does not take into account many of the social realities of second-language acquisition in underprivileged communities.

In many of these communities children's opportunities to develop their native language may be seriously hampered by the negative attitudes of the larger community towards that native language. Poor children are all too often deprived of the many informal learning experiences that we so deeply count on when we are talking about first-language acquisition -- hearing it on the radio and television as well as from a great variety of speakers, seeing it all over, as on street signs — all these things contribute to the fully developing confidence of the speaker. If children hear a language in one setting and under such circumstances where, as they will tell you, "At home we can speak Spanish but in the elevator or the bus we can't" (and many children get the message very young), you can readily understand a response such as, "Perhaps I should be quiet. Perhaps I should communicate nonverbally." These feelings have much to do with the eventual development of bilingual confidence, more so perhaps than many of the instructional strategies that concern us.

Very recently I heard of a study in Los Angeles where Mexican children who attended school in Mexico for the first eight grades were compared with Chicano students in the English-dominant Los Angeles schools. The high school dropout rate of the Chicanos was much greater than that of the Mexican-born, Mexican-educated children. These students, who had been educated in their native language, even though they had to shift over to English at age 14, had a higher educational attainment than the group educated in English from a much earlier age but who had serious language conflicts about themselves.

Indeed, we are constantly confronted with language conflicts when we deal with second-language acquisition in some of our poor communities in the large urban areas. For this reason, we emphasize the development and practice of the first language in situations where a child is in peer interaction. My recent observations of Navajo schools on the reservation, where Navajo is being taught to native speakers the way in which they are taught English, are to the point here. In some of the schools the language is taught very spontaneously and is related to peer interaction, dramatic play, traditional tales and singing, and so on -- all the settings which seem to me appropriate for the development of language in young children. But in one school that is very achievement-oriented, I saw the seven-and eight-year-old children receiving instruction in English as a second language during the morning. The main methods used were drill and flash cards, particularly on the correspondence between written and spoken symbols, in which they had a lot of practice. They would sit in little groups of five and six, the teacher would hold up a card, and they would race to see who could tell what the sound was. The identical situation held for the afternoon session in Navajo. Children were taught their native language by totally abstract and out-of-context methods mainly because that was the only way their teachers knew. These Indian teachers couldn't fall back on their native sense about how to develop and use their own language, so they adopted the same methods they used in ESL instruction. This, in a way, is the most serious problem we face when we recommend bilingual education as a psychologically more meaningful process of learning.

Again and again what we must emphasize is the continuity between the many settings in which children learn. School is a special setting, therefore school should not be the only setting. The school -- if it is good -- is a variation on already existing settings in which children learn and rehearse that which

they know. Once you formalize learning, even for the native language, you certainly convey to children that learning in general is a dull, overwhelming, and continuously painful process. It does not matter what you are learning within school -- English or Navajo -- learning is hard work and sometimes it is boring. The children I observed were sprawled all over their chairs, just waiting to be called on. The classes were arranged in small groups, there were two teachers, the classrooms were beautiful, there were lots of materials, the parents were made welcome in every possible way, the school setting was ideal, except when it came to how the children were taught. The school's governing notion still held that children had to be taught, that they did not know how to learn -- a notion that had to do not with the support of learning, but rather with very careful, minute-by-minute planning of every possible aspect of instruction. If we argue that the bilingual child has to have many ways in which the continuity of learning from his home and community environment can be strengthened and developed in the school, then we have to revise that notion. We have to support learning and implement it by giving a teacher opportunities to work with language while she is doing things, such as baking a cake or setting up a store situation or developing ideas of number and size and shape that relate to real experiences of the bilingual child in his home.

Space, for instance, could be a significant bicultural experience. If anybody has to make very definite space adjustments it is the person who comes from a primarily outdoor way of life (which should again and again be described for us) to predominantly indoor living. This may explain in part why Puerto Rican parents are most uncomfortable about letting their children out into the street or even into the playground. How do such children create an alive and meaningful spatial environment for themselves when they are that closely limited in terms of what they can explore physically? A bilingual program in open classrooms would give serious attention to the problem of offering these children many opportunities to explore their environment physically in order to help them overcome one of the biggest cultural shocks they experience.

This is the kind of thing I would like people to start thinking about and really analyzing; the adjustment and changes that the family at large had to make and then how the school can truly be an environment in which some of these very difficult adjustments are *dealt with* in constructive ways. Space, I

think, is a challenge because considerable thought is given in informal education theory to a child's relating with his own body to learning certain concepts of number, size, and shape. This is an area in which many interesting things could be done in Spanish and in English.

Another subject crucial to language development about which there has been some disagreement is the matter of comprehension versus production. My belief is that children need many opportunities to both hear language and to respond to it in nonverbal ways, particularly if they are caught between two languages. At the same time, they should not be exposed to too much direct pressure for producing in either one of their languages. Teachers who are anxious to estimate a child's language growth should make possible a good deal of peer group interaction. In this way, they can observe what children are talking about, how much they are talking to each other, and who are the dominant ones in conversation. Teachers can note who the children are who do not have much opportunity to interact verbally with their more fluent and dominant peers, and can then give those children individual attention.

But for small group activity that aims to provide repeated experience in acquiring new sounds and new structures, I firmly believe that songs are best. Of course, choral speaking is the prevalent strategy in teaching English as a second language, and it is a useful one. There are always certain sounds that need to be produced in a new language that are not part and parcel of the old language, and repeated experience is necessary to know how the new words fit the tongue. But if a child has to do this in a situation where he is being looked at and listened to closely and marked right or wrong, that is not as useful as developing his own judgment of what sounds right. The sooner he can hear himself making sounds the way other people who speak English make them, the more adequately he will be able to do this. It is much more effective to do this through songs, where a child repeats certain lines again and again and then improvises. He is thus practicing the sound without focusing on it. The rhythm of the song carries the whole production of the language and therefore, if he does not get it the first few times nobody really hears it because a lot else is going on. But *he* begins to hear it kinesthetically. He begins feeling it, he begins feeling his mouth, tongue, and teeth making new combinations.

If you want to give non-English speaking children

experiences where they not only hear the second language but also start using it, it is very important to think through choral work that will provide the kind of practice where they are not being judged while they practice. So often we judge somebody as non-English speaking not from the grammatical structures he uses or the sounds he makes but how close the rhythm of his English is to the rhythm of his native language. It is very true for people who learn Spanish; the rhythm is crucial. You can be fluent and have a great vocabulary, but if you do not really get the rhythm you are forever a stranger in that language.

The development of language in the context of gestures, music, dance, and movement is exceedingly important. For this reason, I would like to see more people with guitars in bilingual classrooms. The most effective bilingual classroooms I have observed are classrooms where Spanish parents have been coming daily, leading the children in singing traditional songs and even writing new lyrics that reflect their shared experiences. It is also a way in which the English speaking children participate, using instruments if they do not know the words or song, gradually building a reliance on sound as a source of interest not as a source of torture, and gradually learning to listen. A bilingual child has to develop some interest in careful listening. The teacher's aim should be to develop that interest and skill by exposing him to all kinds of sound experiences, even those that are painful but part of urban living. For example, games of sound might include: Is it somebody trying to start a motor, or is it somebody hammering a nail, or is it somebody opening and closing the icebox? Reproducing many sounds helps a child focus and make sharp differentiations without necessarily putting a lot of pressure on him to produce these sounds correctly.

NATURE OF CURRICULUM

A second controversy relates to the nature of curriculum in a bilingual classroom. Should the curriculum be just a translation of the existing formal approaches to teaching and learning or can we develop specifically bilingual, bicultural curricula for children which do indeed deal with some of the realities of their existence? A young Chicano man in New Mexico was very upset with me. He asked if we were just going to import British education; that is the last thing he wanted to do. In fact, he did not want

to import education from any place. Alternative ways of teaching come under heated discussion throughout the country these days, but adapting them to the cultural and geographic realities of non-English speaking communities is a very different matter.

The way in which bilingual programs came into existence had a lot to do with the importance of the non-English language of a particular community. Some of the southern Texas schools are located in towns that are 80 to 90 percent Spanish-speaking, are close to the Mexican border, and are largely made up of agricultural laborers whose employers really do not care too much whether their workers speak English. In these communities, bilingual programs had been initiated in the early 1950s. It was taken for granted that Spanish was available. It was not felt necessary to push the children to shift, after two years of Spanish, to a full English curriculum. Nothing ideological was involved. Spanish was so prevalent that it was part and parcel of people's lives, so Spanish was used and Mexican educational materials may have been more relevant, too, for those children.

In many communities, however, this subject has been affected by ideological decisions. In one that I am particularly familiar with, the Rough Rock (Arizona) Navajo schools, the community originally limited its interest to having school board members who were themselves Navajos, who had very little education, who merely wanted to exercise some control over their children's education, but who would not make fundamental decisions about what should happen to Navajo. At the beginning, the school started with English and introduced Navajo when its children became 10, 11, 12 years old. As they observed more and more Navajo-speaking institutions springing up around them, as more community institutions came to rely on the Navajo language for critical and useful communication, the school started to change its educational program to reflect the change in attitude toward the native language.

Of course, the strongest demand for developing a Spanish-speaking curriculum comes from the Chicano militants in California, who say that they oppose bilingual education because they oppose educating their children in English. This is not an attitude that you find too frequently in New York. But as higher and higher levels of education are now becoming available in some of the native languages, the notion that you can have parallel educational

programs, where children can be educated from pre-school to college at least part of the time in Spanish and part of the time in English, also colors the controversy. What is implied in this position is that many things can now be done and learned in one's native language, and therefore, for either ideological or practical reasons, there are more and more opportunities to use not only Spanish as a transition language but as a fully-developed half of one's mental life, if one should wish to. The international attitude toward our American arrogance of expecting everybody to speak English has something to do with this. More and more businesses and government agencies need people who can speak foreign languages. Once you learn a second language you are more likely to be able to learn a third one since you have broken through your block about learning foreign languages. There are many variables, both ideological and pragmatic, that have created a variety of approaches to this question.

Finally, the two areas in which you are more likely to be able to get impressive gains in native language experiences, and through which the children's intellectual growth can have an impact upon the teachers and the community observers, are in reading in Spanish and in doing numbers in Spanish. If I had a choice as to where to start a Spanish-speaking curriculum, this is where I would focus. As much as possible, put up Spanish signs. Remove everything written or printed in English, for the first and second grade children. They see it everywhere else; it is not that they are deprived of seeing it. A bilingual classroom should be visually saturated, if at all possible, with the written equivalent of the spoken Spanish. Don't feel that you have to have it in both languages at the beginning. Spanish language is more phonetic; there is a more regular correspondence between the spoken and the written language. If out of this comes an experience of success, a great number of people will realize that children are learning to read relatively earlier than they have in other classrooms, which then creates a good feeling both among the parents and the children. The creation of written Spanish in an experientially meaningful context is what we have not really paid much attention to. And that would be my primary goal as a teacher -- recipes in Spanish; nature experiences in Spanish; walks in Spanish. All of these things that are natural to an open classroom curriculum need to be worked out with people who possess the vocabulary of the Puerto Rican.

Like many children, parents and teachers also have a problem with Spanish or English dominance. For example, I have found that it is virtually impossible for me to talk about psychology, my special field, in my native language, which is Hungarian. We tend to develop domain-specific skills; the language in which we learn something is usually the language in which we are comfortable in dealing with the whole area of related meanings and experiences.

We must seriously consider how we are going to work with teachers so that they have the feeling: "Yes, my language in Spanish is fluent enough so that my teaching in Spanish is a source of joy for me instead of stress." Effective bilingual education is dependent on the language freedom, security, and confidence of those people in the classroom who are not native English speakers and on whom the whole burden of bilingual education truly rests. But instead of developing our own materials, what we usually do is feed into bilingual classrooms commercial materials -- books, tapes, and records -- that are produced in Central or South America and thus do not truly reflect the North American urban culture either of the teacher or the children. So many of the experiences of these children, whether they themselves were born in New York or came here at a later age, have to do with the real problems of what it is like to have to make the fundamental adjustment to urban living as well as to speaking English. Creative materials could be developed based upon the actual experiences both of the teachers and the parents -- true-life stories that deal with such themes as taking the subway, using the elevator in a high-rise apartment building, where to shop, how to find out when relatives are arriving, speaking to the telephone operator. These are just a few of the great number of true-life situations where the language conflict can be of particular meaning and affect to parents as well as to children.

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Learning to read

Frank Smith

The following is excerpted from Understanding Reading *by Frank Smith (Holt, Rinehart and Winston, Inc., 1971).*

A child coming to reading instruction has had considerable experience with all the cognitive skills involved in learning to read. He "knows" how to look for the significant differences between objects, to establish equivalence categories, to create and associate internalized "feature lists," to make use of redundancy, and to accumulate new information by "testing hypotheses," trying out possible rules and getting feedback. The visual and auditory acuity of most children is perfectly adequate for the discriminations that they have to make in reading; if there is a defect, it will manifest itself in other, nonreading contexts. A child who can pick up a pin has acquired the visual acuity to identify features of letters as well as an adult; in fact, even better, because for most of us acuity starts going downhill from the age of four. What the child does *not* know is *where* to look for the distinctive features of letters; he knows how to look, but not what to look for.

This raises the question of what additional knowledge a child requires in order to be able to read. Part of the answer has already been given; he needs to learn what are the distinctive features of written language and their relations to letters and words and meanings. He needs to know what makes and what does not make a difference in reading. Some of these differences and similarities he can perhaps be shown in a very general way, like the white space between words and between lines, the correspondence between spoken and written aspects of the same word or meaning, or the fact that while a 1949 Thunderclap convertible is still a 1949 Thunderclap convertible whether it goes from left to right or right to left, *was* is not the same as *saw*.

We might observe at this point that the "error" of reading words backwards can occur only if the child is applying mediated word identification, constructing the word through the intermediate route of identifying letters. But for fluent readers who have a feature list for the entire word configuration, such an error cannot occur. A fluent reader, in fact, has relatively little difficulty in reading a "backwards" word if it is a mirror image rather than esuoh *-- or upside down. In both the mirror image and upside down words, of course, all the featural relations are preserved.*

Many of the significant differences of written language, however, a child cannot be shown; he has to discover them for himself. Nobody knows enough about the distinctive features of print, for example, to give a child the knowledge that he really needs in order to be able to distinguish letters or words. Instead the teacher must make sure that the child gets the information he needs to discover features -- and establish feature lists -- for himself.

The argument that a child must discover features for himself applies also to the way in which visual and acoustic and semantic category associations must be learned. All the teacher can do is provide the raw material, the written word and its "name." The child also has to discover for himself what are the sources of redundancy in written language; as we have seen, this knowledge is vital if he is to overcome the limitations of his visual information-processing system. In one sense, of course, the teacher does "know" what these critical rules of featural and orthographic and semantic redundancy are; otherwise, he could not be a fluent reader himself. But this special information about redundancy is not accessible to our awareness; we acquire and use it quite unconsciously, with the unfortunate result that not only can we not pass it on verbally, but we often fail to realize how important it is. And therefore a child may not get the opportunity to acquire a knowledge of redundancy by the only route that is open to him -- by experience in reading.

Finally, a child has to learn to read fast. There may be occasions when he is required by the difficulty of the text or the exigencies of the teaching situation to read slowly, letter by letter, word by word, but he has to learn that *fluent* reading is relatively *fast reading*, perhaps not much less than 200 words a minute. The reason that reading has to be fast we now know. The processing of visual information is not instantaneous but takes a signifi-

amount of time, *during which losses always occur.* Information is very quickly lost in reading, especially if it is not condensed into "meaningful" form and put into long-term memory. A child who has to read letter by letter, or even word by word, has very little chance of comprehending. So while it is true that a child needs the intermediate skills of mediated word and meaning identification, he should not have to rely on them. It is not necessary that he learn them all before he gets on with the major objective of immediate comprehension, because it is only when the larger part of reading can be accomplished immediately that the reader can afford to stop and use, or learn, mediated reading skills.

Obviously, the same argument applies to "phonics." The actual, as opposed to the traditional, objective of phonic training is to establish in the child the visual - acoustic categories that will enable him to mediate the identification of words that he cannot identify on sight. But to a large extent the child has to learn these phonic rules for himself, and he will only acquire them through experience in reading. Yet reading will prove impossible, he will never get enough opportunity to acquire the information he needs, if he is not able to read *fluently*, immediately, without pausing to identify every word.

We are now at the heart of the question of how a child actually does, and must learn to read. What are the sources of information available to him, what are the difficulties, and what is the role of the teacher? First, let us consider one by one the elements of reading.

A child has to discover the distinctive features of written material, the significant differences by which alternative letters, words, and meanings can be differentiated. And the only way he can get this information is to be shown what the alternatives are. Consider the problem of distinguishing one letter from another. If a child is shown just the letter *H*, and told its name, he gets practically no information at all. What is it about *H* that gives it that name -- its size, the cross bar, the way it is leaning, the color of the ink on the paper? The child will use whatever cue he can. But suppose he is shown two alternatives, *H* and *F;* now at least he can see a difference. *H* has one cross bar and *F* has two, so he has a "distinctive feature" for *H*. But then what happens when he meets *A?* And how will this property that helps him to distinguish *H* from *F*

enable him to see that *B* and *R* are different? A child needs *examples* and *contrasts*. He literally needs to be told only one bit of information -- that these things should be considered the same, and those things considered different. Giving the child a verbal label, saying *This letter is "H" and that letter is "A"* may be highly useful for communication purposes, but it is not directly relevant to the process of visual discrimination, to learning how to categorize some things as the same and some different. The child needs evidence, not instructions.

It is necessary at this point to clarify the relation between "learning the alphabet" and learning to read. There is an empirically well-founded correlation between the ability of children to identify letters and their ability to learn words, leading some theorists to believe that learning letters is a necessary first step for learning to identify words, and even that word indentification must depend on letter-recognition skills. It is one of the basic aspects of my analysis of reading, of course, that the distinctive features of letters are the distinctive features of words, and also the distinctive features of meaning. Anything that will distinguish two letters is capable of distinguishing two words or two meanings. But that does not entail that learning the alphabet must precede learning words or comprehension. Quite the reverse; since the features of letters and words are the same, one might just as well learn what the features are from words as from letters. Certainly it will be easier to read if one learns some words first (as most children do). Redundancy is a great help in all aspects of reading, and the most redundant way to learn what visual features are distinctive in reading may be to look for them at the letter, word, and meaning levels, rather than at one of those levels only.

In addition to discovering what distinctive features are, a child has to establish his "categories" for letter and word identification, as well as establish all the visual-semantic associations required for comprehension. The type of information that the child requires to establish categories and associations is exactly the same as that which he needs to discover distinctive features; he needs to know what the alternatives are and which configurations should or should not be treated as the same. If told that two letters, or two words, or two meanings, are the "same," he puts them in the same category; he decides that none of the differences between the

members of each pair is significant. He establishes rules and lists for functional equivalences. But if told that two letters, words, or meanings are not the same, he must use two categories, one for each member of this pair. And if he cannot fit either member into any existing category, he will put it into a new one. He will also associate the new category with a "name," if that is given. And if he gets the information that a configuration which he could not identify should go into a category that already has a "name," he will establish a visual feature list for that category to permit future allocations.

The child has to learn how the rules of syntax are related to the written aspect of language, together with the relation of visual configurations and semantic interpretations. All this can come about only if the child is given examples, if he is shown what is the same and what is different. He has to be given the raw material so that he can develop the rules for himself. He can only look for the "regularities" that are the basis of all cognitive activity if he is exposed to a large enough sample of "evidence."

And, once again, a child needs to build up reading speed. He needs as much help and encouragement as possible to develop fluent reading, because the discovery of rules is made enormously more difficult if the reading rate is slow. A child may be able to learn to distinguish letters at a plodding one-at-a-time pace, but to learn to read for meaning, and to have an opportunity to acquire knowledge about redundancy, he has to keep moving ahead of losses in sensory store and short-term memory. Learning to read is a bootstrap operation.

THE TEACHER'S ROLE

The preceding analysis may leave the impression that there is nothing a teacher can usefully do but provide a pat on the back and keep plenty of reading materials around. Of course, the learning situation is nothing like that. Apart from all-important motivational and managerial functions, the teacher's contribution can be summed up in one word -- *information*. A child has to be shown the type of material from which he must reduce uncertainty; he must be told where the uncertainty lies. He must be told what the task is. A child has to be given the information as to whether two configurations are the same or different; the knowledge that they are different in effect establishes the uncertainty, "How do I distin-

guish one from the other?" A child has to be told the "names" that are conventionally associated with letters, and should not be left too much to work out for himself the names of words by phonic methods. Once again, an overdependence on mediated reading places an almost intolerable burden on the visual information-processing system. Similarly, a child has to be given examples where differences in meaning lie, so that he can establish the necessary visual and semantic relationships.

But all this information is useless if a child tries to remember a simple listing of associations, a set of "instances." What the child has to do is induce *rules*, to predict a regularity on the basis of information received on one occasion, and try it out to see if the rule is valid on another occasion. And this is perhaps the most critical aspect of the teacher's role as a supplier of information, to *provide feedback:* to say "right" or "wrong."

Feedback is the most important kind of information that a child can receive in any learning situation for this reason; it supplies him with just the right kind of information at the precise moment that he needs it. It may be just fortuitous that a child learns to identify a letter or word or meaning at the time his teacher gives him formal instruction on that point. Some happy coincidence between the child's implicit "question" and the teacher's information must occur. The "implicit question" lies in the child's uncertainty. Unless he is, in effect, presenting himself with the question "Which of these alternatives must this configuration eliminate?" then his teacher's information is irrelevant to the child.

A child looks for feedback when he tries out one of his rules, when he "predicts" which of a number of alternative responses he should make. Feedback then is information that is right to the point.

Feedback should be given all the time. Every response a child makes, every identification of a letter or word or meaning, should be given the feedback of whether it is right or wrong. But these terms "right" and "wrong" should not be interpreted in a negative or punitive sense. The question a child is asking when he makes any response is "Does the rule that I have just used apply?" And if he is reading for meaning, he may not be in need of feedback that a particular word is "wrong."

Of course, a child does not need to be given positive

feedback overtly all the time -- he does not need the teacher to say "right" after every word. But he has to get the message, one way or another, that what he has just done *works*, that his prediction is confirmed. Silent approval is just as informative as a round of applause. And being told that he is "wrong" is just as informative for the child as being told he is "right," provided there is no emotional overloading. If he does not know whether a word is "race" or "rice," it makes no difference informationally whether he says "race" and gets the feedback "wrong" or says "rice" and gets the feedback "right." Unless there is a price for making "mistakes."

Here is the crunch. A child cannot get feedback unless he "asks for it" -- he needs to make a response that he knows may *or may not* be "correct." If he makes a response that he already knows *is* correct, there can be no informative feedback. Only a hazarded response when the rule employed might equally well apply or not apply can be rewarded with useful information. But a child will not hazard such responses if the cost is too high.

No one can be right all the time. To be right a lot of time, you have to be prepared to be wrong occasionally. We have seen a number of times...that you cannot read for meaning unless you read relatively fast, which means that you do not necessarily read word for word. You may read a word in error occasionally. And now we see that there can be no learning unless rules are tested, with the possibility that incorrect identifications will frequently occur. The implication of all these statements is so obvious it needs no underlining; fluent reading and learning to read fluently require a willingness to "make mistakes." And the extent to which a child is prepared to risk mistakes is directly related to the tolerance of the teacher in accepting them.

A process insignificant and long known

From Tolstoy on Education *(University of Chicago Press, 1967).*

The teacher always involuntarily strives after selecting that method of instruction which is most convenient for himself. The more convenient the method is for the teacher, the more it is inconvenient for the pupils. Only that manner of instruction is correct with which the pupils are satisfied.

We have now abandoned mechanical reading entirely... each pupil is permitted to use whatever method is most convenient for him, and, strange to say, they have made use of all the methods I am acquainted with: (1) Reading with the teacher, (2) reading for the process of reading, (3) reading with memorizing, (4) reading in general, and (5) reading with the comprehension of what is being read.

The *first*, in use by the mothers of the whole world, is not a scholastic, but a domestic method. It consists in the pupil's coming and asking to read with the teacher, whereupon the teacher reads, guiding his every syllable and the combination of syllables --the very first rational and immutable method, which the pupil is the first to demand, and upon which the teacher involuntarily hits. In spite of all means which are supposed to mechanize instruction and presumably facilitate the work of the teacher with a large number of pupils, this method will always remain the best and the only one for teaching people to read, and to read fluently.

The *second* method of teaching to read, through which every one has passed who has learned to read fluently, consists in giving the pupil a book and leaving it entirely to him to spell and understand as well as he can. The pupil, who has learned to read by syllables so fluently that he does not feel the need of asking

the sexton to read with him, but depends upon himself, always acquires that passion for the process of reading which is so ridiculed in Gogol's "Petrushka," and on account of that passion advances. God knows in what manner that kind of reading assumes any definite shape in his mind, but he thus gets used to the forms of the letters, to the process of syllable combinations, to the pronunciation of words, and even to understanding what he reads, and I have had occasion to convince myself by actual experience that our insistence that the pupil should understand what he reads only retards the result. There are many autodidacts who have learned to read well in this way, although the defects of this system must be apparent to everybody.

The *third* method of teaching reading consists in learning by heart prayers, poems, in general anything printed, and in pronouncing that which has so been memorized, looking at the book all the time.

The *fourth* method consists in that which has proved so detrimental in the Yasnaya Polyana school --in the reading from a few books only. It arose unpremeditatedly in our school. At first we did not have enough books, and two pupils had to read together; later, they themselves became fond of this, and when the order is given to read, pupils of precisely the same ability pair off, or sometimes assemble three at a time, around one book, and one reads, while the others watch and correct him. You will only disturb them if you rearrange them, for they are quite sure who their matches are, and Taraska will certainly ask for Danka.

"You come here to read, and you go to your partner!"

Some of them do not like such collective reading, because they do not need it. The advantage of such reading in common lies in the greater precision of pronunciation and in the greater freedom of comprehension left to him who is not reading, but watching; but the whole advantage, thus produced, becomes harmful the moment this method, or, for that, any other method, is extended to the whole school.

In fine, another favourite method of ours, the *fifth*, is the graded reading, that is, the reading of books with ever growing interest and comprehension.

All these methods, as mentioned above, quite naturally came into use in our school, and in one month we made considerable progress.

The business of the teacher is to afford a choice of all known and unknown methods that may make the matter of learning easier for the pupil. It is true, with a certain method --say with reading out of one book --the instruction becomes easy and convenient for the teacher, and has the aspect of seriousness and regularity; but with our order it seems not only difficult, but to many appears even impossible. How, they say, is one to guess what is needed for each pupil, and how is one to decide whether the demand of each is justified? How can one help being lost in this heterogeneous crowd which is subject to no rule?

To this I will reply that we cannot get rid of our old view of the school as a disciplined company of soldiers, commanded today by one lieutenant, and tomorrow by another. For the teacher who has adapted himself to the liberty of the school, each pupil represents a separate character, putting forth separate demands, which only the freedom of choice can satisfy.

If it had not been for the freedom and for the external disorder, which seems so strange and impossible to some, we not only should never had struck these five methods of reading, but should never have been able to employ and apportion them according to the exigencies of the pupils, and therefore should never have attained those brilliant results which we have of late attained in reading.

How often have we had occasion to observe the perplexity of the visitors to our school, who in two hours' time wanted to study the method of instruction, which we do not have, and in the course of the same two hours told us all about their own method! How frequently we listened to the advice of these same visitors to introduce the very method which, unknown to them, was being used in their presence in the school, only that it was not generalized as a despotic rule!

Leo Tolstoy

Media in the corridor

Bette Korman

Each time we blink our eyelid shutters we snap a mental picture of an event happening in space and time. Still and kinesthetic actions immortalized through perception. Our vision is forever filming the movie of our life. As the myriad of shapes, forms, thoughts, and feelings dance by and through our mind and body, we try to find a pattern or structure to help us understand and communicate our immediate creative experiences. This process of selection and definition brings an awareness to the person's perception of the object or event.

This year, in a film and media program at P.S. 75 and 144, I have worked with children on a series of experiences designed to evoke a verbal and visual awareness while exploring, structuring, and defining their feelings about themselves, others, and their immediate environment. Each week I meet with children, ages 5 to 8 years, in a section of the corridor. Mirrors, mylar, seeing machines, photograms, film making and simple media applications, as well as the writing and tape-recording of poems, songs and narratives, have provided the palette for creative expression.

When we get together we begin by focusing on provocative questions. Where is the self? Is there a world inside yourself? How are you like the objects floating in outer space? Five or six questions have stimulated the bulk of the explorations so far this year.

"What is the self? Can we see outside ourselves? Can we look into ourselves?" While asking these questions, I placed a group of 14 mirrors on the floor for the seven children I was working with to use. I hoped the mirrors would provide a medium through which they could explore their physical image, and through which they could focus on the procession of changes that occur in the outer landscape and on their own changing moods. Some use the two-inch mirrors to reflect objects fleeting by: "I see you, I see the chair, my bow." Others immediately identified with the mirrors and made them into eyes that search within, expressing a song of themselves. In both cases, they

began to define in real terms their own concepts of seeing. They culminated the exploration by making self-portraits using the mirrors as eyes and by writing short-story poems to express their perceptions Here are some:

Myself
I see myself
In the mirrors
The mirror does what I do
I sing and the mirror sings.

Oh boy, I looked up
and saw water running off my face
I saw a butterfly and saw
Me in the mirror when I went home.
I wore a hat at the end of the story.

Mirrors
They look like eyes
They both see
They see out of their eyes
They can see things that people do.

Eyeballs of glass
They are looking
They are changing
They are changing from
Green to blue.

I see myself
I see teeth
I see my eyes
I see my bow.

Eyes
Look down
Cross eyed
They look like a rooster
They look ugly
They blow like windows.

We began again. We used mirrors again. Mirrors could be used as eyes that reflect objects. They could also be round worlds. Moving worlds. Shining worlds. We too are worlds moving in our own gravitational sphere. The children took several mirrors, stood up, and moved around slowly. "Do these moving circles make you think of any special objects? What worlds are there outside of our world?" Using the whole 20 feet by 20 feet floor space each child began to manifest in a different way the specific worlds -- real, imaginary, his or her own name -- that he chose to be. "The clouds-the moon-the world-the planets -

the sun - Marie's world." Spinning fast, running, colliding, dancing, and turning slowly, they finally turned toward a large mural paper 4 feet by 15 feet where they were encouraged to paste their mirrors and create visually (with magic markers, paint, cut paper, and glue) the still conception of their kinesthetic movement. I asked, "How does your mirror world feel? How are you like the worlds that swing in the sky?" Ideas evoked were danced, drawn, and then verbally expressed. For example:

Big worlds
They fly, move
They move to another part
With my feet I move to another part.

The sun loves the sky and clouds
My father is like the sun.

The man in the moon
has a mouth
And I do too.

I sleep, the sun sleeps
The sun moves slowly
And I do too
the sun doesn't talk
but I do.

Sometimes I feel hot and cold
Like the stars.

Glass sun
It shines
It moves
Clouds move
Moon moves
Walking
We move

My world moves fast
and slow
Up and down
And all around.

The planets go round
in the sky
I go round corners.
I like my planet
It is good.

We looked in. We looked out. We used our eyes to focus on unlimited things. To be able to focus on things very near and very far away, the children

constructed a seven-foot "seeing" machine. I had collected around 30 scrap pieces of tri-wall cardboard and cut slots in them so they could be slipped together in any number of ways to make a standing sculpture. They experimented with several possible structures and chose the one that was sturdy and balanced. This shape -- fantastic, imaginary and complicated -- became the base for a collection of kaleidoscopes made from cardboard tubes decorated with small machine parts on the outside and capped at one end with acetates, mirrors, color capsules, and small bottles filled with colored waters. Each looking glass told of a microcosmic and macrocosmic world.

"I see a hole. I see glass. A little design. A little moving water world." "I'm looking in a telescope where you can see far.....the moon. I see green and blue. The green reminds me of a queen. The blue reminds me of I love you."

Crazy convex and concave mylar balls created the illusion to the viewer of being rightside up and upside down. When asked how they felt to be in these positions, children responded in the following ways:

Upside down, I see a good toy.
I see a window.
Upside down apron, dress, hot pants.
SAD, MAD to be upside down
I'm crying so bad
Donna upside down.

Face inside
Upside down
Smile aching

Upside down
My feet up in the air
My head on the ground.
I feel like I'm gonna fall
And bust my butt.

Right side up
It makes me look real fat
The closer I get
The bigger I get

I look funny
cause I'm round.
I feel mad
cause I look funny.
Look at my hands
I have big giant hands

like the Jackson 5.

The one that sticks out
Makes my head look little
It makes me have a
funny face.
I feel little like an ant.
Very close it looks
like a cocaroach.

Having discussed various physical and general aspects of the self, I became more specific and asked, "Do you feel the same all the time? Do we have one predominant feeling or do we have many feelings and moods that change?" The children talked about different feelings they had, acted them out, giggled, fell on each other and then cut out of magazines pictures of people's faces and bodies that reflected different moods. They pasted them on a tri-wall screen, labeled them, pasted a large piece of mirror mylar on it too, and finally cut and pasted a circle spinner with the names of all the emotions they could think of written on it. They proceeded to spin the spinner to a feeling, portray it in the magic mylar mirror, and improvise a dance or dramatic scene from it. These scenes, as well as some mirror, machine, animal and shape dances were video-taped. This introduction to the expressive exploration of feelings will serve as a theme for the sequential slide work, overhead projector, and Super 8 storyboarding which we will be working on in the spring. A collection of their feeling descriptions and expressions is being written and tape recorded to provide a sound background for the media visualizations.

We finally got to working with studio, blueprint, and repro-negative papers. We talked about silhouettes, the shape of solid objects, and the empty space surrounding them. We talked about the Egyptian people and discussed what they chose to be immortalized with. I asked, "What would you like to be immortalized with on your print?" Several children used objects they were wearing: African bracelets, a comb, eyeglasses. Others found favorite objects in their room. The results were fantastic. As the sun slowly darkened the negative space on the studio paper, turning it a deep plum color, one boy cried, "It's magic." When the fixer and hypo fixed the papers and changed their color to a dark brown, there was silence and awe. How many adventures -- with timing, controlling light and chemical preparations, observing the ultra-violet reactions in different weather conditions -- can be explored with non-darkroom photography techniques! As a result of working with these simple materials

the children's appetites were whetted to working with media contraptions, which would otherwise function as ethereal products in the environment rather than practical implements to be creatively used. I am hoping that by the end of the year, having gone through both simple and more complex interactions with slide and overhead projector techniques, animation, scratch and doodle, and Super 8 film-making, the children will freely use these applications as tools to help them select, define, and communicate their personal statements.

There are several immediate values in working with film and media techniques. If children have an opportunity to learn and work creatively with media they can begin to control their effects rather than being programmed and controlled themselves. A humanization of the machine can occur. When something is unknown, be it a chemical, a paper or a complicated machine, an estrangement takes place. By familiarizing ourselves with the object, we demystify it.

For the inner-city child who is engulfed by buildings, cars, and the static geometrical, machine-like rhythms of urban life, working with liquid processes in the slide and overhead projector enables him to create and experience large, organic, undulating rhythms on the screen or wall, manipulated by the pressure of breath through a straw or hand pressure on a plastic envelope. This visual effect is of vast natural expanses, reminiscent of flying clouds, swirling water or swaying trees -- an otherwise rare encounter. Just the fact that the projector equipment enables children to magnify their creative image to fill the wall, or the entire room, is very beneficial. By extending into space -- grownup space, environmental space -- by filling the room with themselves, the children get a chance to exist and feel important in the "big" world. Finally, media techniques can accommodate the action-oriented, singular statements characteristic of the younger child (mirror portraits and photographic printings, one at a time processes) or provide a framework for seriation and a more mature juxtaposition of ideas as cognitive thinking develops through filmstrip making, simple animation, and storyboarding.

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Game is a verb

Agnes A. Violenus

"Playing Games!" How often we ourselves have used or heard others use this expression -- frequently in sneering or derogatory tones. But we who have become committed to an open way of education realize the immense importance of *play* both for rehearsal of real-life situations regarding personal attitudes and interpersonal relationships, as well as for developing more academic knowledge and skills. It may therefore be of interest to explore the value of the inclusion of *games* in the open classroom as one form of general play activity. This discussion focuses on board or table, one-on-one games, rather than on more active large-space, indoor or outdoor team games. Some of the principles I describe below, however, apply to both.

First, at the risk of being unnecessarily dogmatic it is probably fair to say that the ultimate object of a game is to *win*. The game is set up and explained and the task is set: a child says to himself, "In order to successfully complete this task, I must *win* this game." Winning has become an *idee fixe* for the child. It follows that whatever other 'learning' (e.g., math facts, sight words, etc.) that the teacher might expect to take place, must from the child's point of view be secondary to *learning how to win*. As we have all probably felt at some time, having the skills and knowing the details of a game to perfection doesn't always (or even half the time) guarantee the winning of the game.

To come then to the title of this discussion, *Game* is a verb, by game I mean a way of 'playing' that has winning as its primary objective, through strategy, through bluffing or feinting tactics, and through "psyching" one's opponent in a variety of ways. An illustration of what I mean is the popular, so-called educational game of "word bingo." In order to win in this game, it is necessary for a child, *without assistance,* to recognize *within moments* the words on his card which match those called out by the leader, and to signal *the instant* he has a winning configuration on his card. The teacher might regard this game as useful for the reinforcement of basic sight vocab-

ulary; but a child who does not have a firm grasp of the sight words involved will reject the task of trying to win this game because he knows he has little chance of success. It is the wise teacher then who sees to it that in games of this type the children who use it together are firmly in command of the details (words in this case) and thus have an even chance to win. The opponents must be equally skillful in word recognition, must have respect for each other's skill, and must therefore give attention to the strategies of the game, e.g., judicious selection of one's word card, quick sighting of winning arrangements, etc. On the other hand, if the teacher actually intends to use this word bingo game for instructional purposes, an adjustment in the 'rules' is indicated. For example, the task has to be changed from that of being the one individual winner to that of being helpful to the other players in trying to match all the words called by the leader onto all the cards within a given time. Thus the game is raised to a level more closely allied to *play* -- with supportive interaction rather than competition, with mutual success and congratulation rather than personal victory.

Turning now to a second point, teachers and parents frequently introduce a game to young children with the notion that a concept complementary to that of winning will be developed -- i.e., that this is a good way for children to learn how to *lose*. Here is a concept of extraordinary sophistication; whether or not it is a useful one in an instructional setting is open to debate. In many classrooms I find chess, checkers, *Monopoly* and a variety of other commercial games. I have observed that most of the children who voluntarily gravitate toward these games are the more skillful players who almost invariably select an opponent of lesser ability. The latter child will 'play' the game -- knowing that he won't win -- for, perhaps, what he perceives to be social advantages of being 'in' with a particular player or group. In order to maintain this social advantage some children, even after they become quite familiar with the skills and strategies of the game, will adopt a permanent 'loser' status -- not even trying to succeed at the task of winning because they do not wish to risk being excluded from their position (weak as it is) in the peer structure. In other words, over the course of a term, unless there is thoughtful intervention by the teacher, those good players who started out winning games at the beginning of the year will still be the winners; and those who started out being losers will, for the most part, *still be losers!*

How then to intervene? Of course, organizing tourna-

ments insures that skillful players will eventually meet each other over the game board, but what long lists are made by the names of those eliminated along the way! Again, the teacher must focus on the actual aim for introducing the game into the classroom environment. Is developing skills in mental and written computation the reason for having *Monopoly?* Is keeping records of chess games viewed as being of aid to developing children's reading and recording skills? If so, how can the game be adapted to focus on this? What are some task cards, short stories, children's literature, special vocabulary lists, etc. that could be set out for the players to read, discuss and try out together?

The final point I want to make is about the relationship of certain games (e.g., spell-downs) to a testing situation, fraught with implications of failure and revelations of inadequacy, among other things. One way (not necessarily the best for the teacher to adapt these games to a play situation is to revise them into solitaire-type games in which the player sets himself the task of improving his own previous best effort, setting out his own configurations and matchings.

In this regard, probably the best games for the classroom are teacher-adapted and teacher-made. That is, if the real aim is to be the reinforcement of skills (of an affective or of a cognitive nature), the elements of *gaming* should be reduced, and the concepts of play brought to bear -- usually with the inclusion of the one element of random chance (a spin of a dial, the toss of dice, a pick of a card) accepted by the players as a way of directing the action of play.

With time, a teacher might come to the realization that no game can *teach* anything. The environment for learning the skills useful for games must take place away from the game boards. Only *after* the children have learned through play -- that is, through direct involvement and experimentation with materials, and with support and interaction of teachers, classmates, paraprofessionals, parents, etc. -- might the *game* ("playing for real," as the children say) be introduced. In fact, the game may be viewed by the youngster of unusual perception as being limiting in the display and use of his skills, his time, and his efforts. He may very well prefer rather to direct his energies to more productive involvements and other interactions on an increasingly complex level -- to further stretch his imagination and his sense of knowing that he can learn and that what he learns can be used to accomplish important things.

Math games

Celia Houghton

Of the different categories of games that one can play with children, those that are most rewarding, mathematically, are ones in which children can change the structure by changing the rules, inventing and reinventing games. Piaget has said that "Anything is only understood to the extent that it is reinvented." The quality of a child's thinking in *making* mathematics is far superior to that used in "doing" mathematics.

Capitalizing on children's need to play, most teachers devise ingenious games to give practice and reinforcement of computation skills.

Examples of this kind of thinking games are "Tic Tac Toe" type games, "Nim" and "Hex."

NIM

1. This is one of the oldest games known; there are many versions. For a "3,4,5" game arrange 12 counting chips or pennies in three rows.

The players (2) alternate in removing one or more chips provided they all come from the same row. Whoever takes the last chip wins; or the game can be played in reverse, whoever takes the last chip loses.

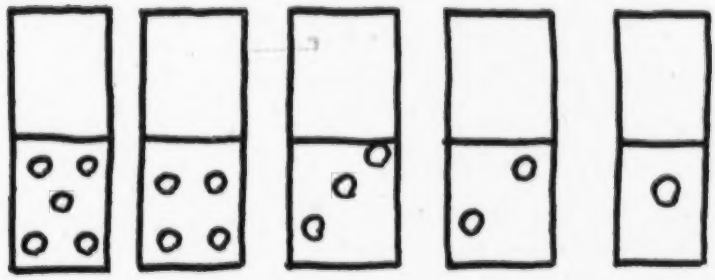
2. Here is a game for two players, playing with one die.

   The first player calls any number (1 to 6), and the second player rolls the die. They then take turns at turning the die one quarter turn, adding the numbers as they go on turning. The winner is the player who manages to get the score to 25 or to force the other player to go over 25. Here is an example.

   > Player X calls 6, player Y throws a 3, making the score 9. X turns up 1, making the score come to 10; Y turns up 3, scorin 13. X turns up 6, scoring 19; Y turns up 3 scoring 22. X turns up 2 scoring 25 and winning.

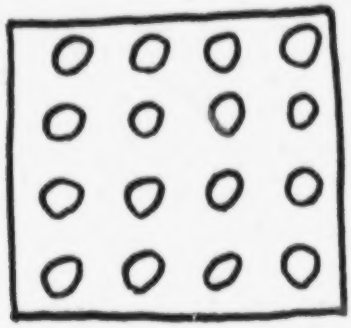
   If you make a die for this game, remember that the numbers on opposite sides must add up to 7 (3&4, 5&2, 6& 1).

3. A similar games is played with 5 dominoes and a coin. You could make index card dominoes.



   The first player places a coin on any domino and scores that number. The second player moves the coin to another domino and adds that number to the score; they continue in this way. The winner is the player who scores 37 or forces his opponent to score over 37. This is not a game of chance; the first player can always win, but knowing that does not help him do it.

4. Piet Hein of Denmark, who devised the Soma cube and the Super-egg and invented numerous mathematical games and puzzles, invented a game which is called "Tac Tix." Counting chips are arranged like this.



The two players alternately remove 1 or 2 chips from any one horizontal or vertical row at a time in one turn. If two chips are taken, they must be adjacent chips, i.e., if player one takes the middle two in the top row, player two cannot take the other two chips in that row in one turn because there is a space between them. The player who takes the last counter loses.

5. *Twenty*
Two players take turns counting the numbers from 1 to 20. On your turn you may count either one number or two numbers, starting when the other player left off. The person who counts the number 20 wins.

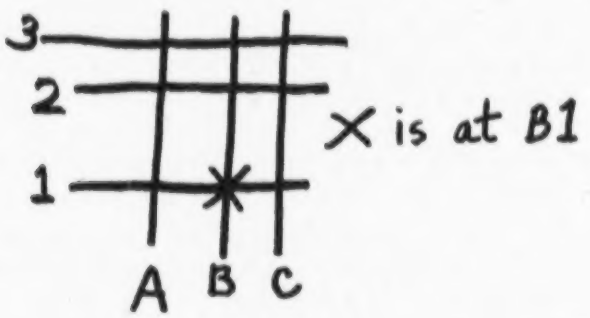
VARIATIONS OF TIC TAC TOE

Tic Tac Toe does not seem to be a very interesting game, but books have been written about it! Some variations on the game are very interesting, however.

1. Try playing it in reverse, the object being to *lose* the game.

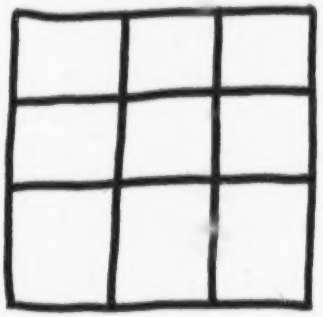
2. Try a game in which each player can play either an O *or* an X on his turn.

3. Try crossing Tic Tac Toe with Battleships, each child playing on his own sheet of paper calling his play by coordinates, e.g.,,



Enlarging the grid to 4 x 4 or 5 x 5 is interesting also.

4. A game I like is one played with counting chips or coins on a board like this:



In a simple game, played in ancient Greece and Rome (and China, I think), the players take turns in placing the pieces on the board; if when all six are down, neither player has won by getting 3 in a row, they continue playing by moving on each turn a piece to an adjacent empty square, in any direction, until one has three pieces in a row.

Try this game on a 4 x 4 board, the winner being the player who gets 4 in a row. Or on a 5 x 5 board, the winner getting 4 in a row or 4 in a square formation on four adjacent squares.

5. *Five-in-a-Row*
One version is played on a checker board. Each of the two players has 12 pieces. They place them on the board, one at each turn and are then allowed to move them. Try allowing moves to any vacant square on the board.

6. *"Go-Moku"* is played on the Japanese "Go" board,

with Go Stones, (Go means 5, Moku means Stones). The players keep placing stones on the board, one at each turn until one has 5 in a row.

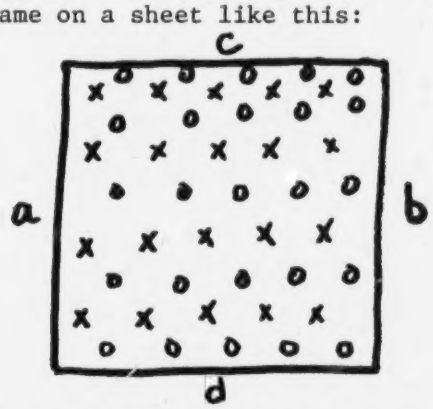
HEX

1. "Hex" was invented by Piet Hein, about 20 years ago, so it is very "young" as games go, but very interesting. It is played on a diamond shaped board, made up of hexagons, 11 along each side, although the size of the board can vary. Two opposite sides of the board are labelled "black," the other two "white." The four hexagons making up the corners of the diamond belong to either player.

   One player has a supply of black pieces, the other white-"Go" game stones are fine. The players alternately place pieces on the board, one at each turn; the objective is to make an unbroken chain from one side to the other side. You cannot place a piece on a space already occupied.

   This game can of course be played on duplicated sheets as a pencil and paper game.

2. Hex is a "topological" game, so is "Bridg-it." "Bridg-it" was devised by David Gale and was called "The Game of Gale" before it was marketed as "Bridg-it." It can be played as a pencil and paper game on a sheet like this:

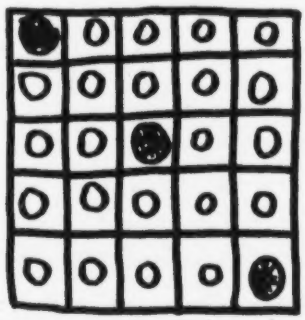


   'X' tries, one step at a time, to get from a to b before o gets from c to d or d to c (or b to a). The lines may go all over the paper but X lines may not *cross* O lines nor vice versa.

   Similar games on the market are 99, Nile, Beeline, Psyche Paths, Twist, and Ski-Game.

EXTRA GAMES

1. *Spy*
For this game you need a 5 x 5 board and 22 counting chips of one color, 3 of another. These are the spies and they are positioned so:



One player has the spies, the other plays all the other pieces-the enemies. The player with spies plays first, then players alternate, moving one piece each move. A spy can move to any adjacent horizontally or vertically, not diagonally-which is occupied by one of the enemy, and the enemy is taken off the board. An enemy piece is moved to any adjacent (vacant space)-not including diagonals.

The enemy tries to force the 3 spies onto the same row or column and wins if he can do this. The spies win if on their turn there is nowhere to move to because there are no enemy pieces on squares adjacent to the spies, and of course the spies are not all on one row or column.

If the enemy wins, the player scores 1 point for each enemy piece left on the board. If the spies win that player scores 10 points. The spy plays the enemy in the next game and the enemy plays the spy.

2. *Search*
A multi-purpose game.
24 small cards made in matching pairs--12 pairs

2 x 3	6	4 x 4	16	etc.

2 x 2	4	3 + 2	5

The 24 cards are placed face down on the board. The first player turns up 3 cards; if, among the 3 cards there is a matching pair [2+1] [3] the player wins those cards. The second player

turns up 2 more cards and sees if there is a matching pair. The winner is the player with the most pairs when all the cards have been removed.

Pairs of cards can be made quickly to give practice in any facts where two parts can be matched: fractions, rhyming words, numerals and objects, etc.

3. *Skunk*
This game gives practice in addition. 2 dice are needed; one die has a picture of a skunk on one side. An orange juice can could be used as a shaker.

The object of the game is to build the highest score; the first player to reach 50 wins.

The first player rolls the dice and totals the score. If he rolls a skunk he has no score for that turn. If he does not roll a skunk he can roll again. can roll continuously if he wishes to, adding t his score, but if he rolls a skunk, he forfeits all points gained during that turn, but not the points gained in previous turns.

The second player follows the same procedure, and the game continues until one player accumulates 50 points; he is the winner. 2,3 or 4 children can play.

4. *Making Fifteen*
Write the numbers from 1 to 9 on nine cards and place them face up on the table. Two players take turns to take one of the cards. The winner is the first to have among his cards three cards totalling 15.

Celia Houghton is Director of The Teacher's Center at Greenwich (Connecticut).

Books

Arthur Tobier

For a long time, an important body of literature on learning and developmental processes, English in origin, has remained inaccessible to most American teachers. The books were either out-of-print or simply not distributed in America. This shortcoming is now being corrected in good part by a new publishing venture, Agathon Press, which since the fall has among other things reissued nine classics: *A Brief Introduction to Piaget* by Nathan Isaacs, *School Begins at Two* and *Children in "The Nursery School"* by Harriet M. Johnson, *The Integrated Day in the Primary School* by Mary Brown and Norman Precious, *Family Grouping in the Primary School* by Lorna Ridgway and Irene Lawton, *Adventures With Children in Nursery School and Kindergarten* by Elsa Barnouw and Arthur Swan, *Childhood and After* by Susan Isaacs, *The Children's Play Centre* by Dorothy E. M. Gardner, and *Young Lives at Stake* by Charity James.

All of the books come highly endorsed, staples of teacher education in England. Time has proved the wisdom of their insights and the validity of their authors' experiences. The descriptions they offer are concrete, the principles laid down are fundamental to the process of children's growth. Finally, they are models of observation. (Incidentally, in addition to its book list, which will be distributed by Schocken Books--the publishers responsible for bringing out Susan Isaacs in this country--Agathon through an affiliate is distributing a group of English periodicals, including *Children's Literature in Education, Education 3-13, Ideas, Journal of Curriculum Studies, Educational Research, and London Educational Review.*)

Two other models of observation--more contemporary than Agathon's list in general but in the same tradition--that have not had the distribution they deserve because of the vagaries of American publishing are *The Logic of Action* by Frances Pockman Hawkins and *Yesterday I Found* by Dorothy and John Paull, both of which are published by the Moun-

tain View Center for Environmental Education, a teachers' center at the University of Colorado in Boulder. *Logic of Action* was issued four years ago, *Yesterday I Found*, last year. The former is the notebook that a gifted teacher kept of work she did during one semester with six three-and four-year olds who not only came from deprived neighborhoods but had a physical handicap (hard-of-hearing to deaf). What is most rare and valuable about this book are the descriptions of a teacher in the process of making choices in response to the learning she observes. As such it is really about what an adult has to contribute to children's learning.

The more recent Mountain View publication is also a teacher's notebook, this one describing the story of the teacher, her class, the environmental work they did, and the paths which led from it to, among other things, mathematics, language, drama, art, science, history. In addition, *Yesterday I Found* contains insightful comments on the children's work by a seasoned observer, the teacher's husband, himself a teacher and member of an Advisory Center in Leicestershire, England, responsible for planning and organizing studies in environmental education. For the teacher to whom environmental studies still suggests geography and history, safely compartmentalized one from the other and taken in at some remove from their source, this 70-page book is a treasure. For those already working in an integrated way, the book will spark ideas. By their respect for the telling detail, the Paulls convey the intelligence of children interacting with their world and the spontaneity with which that intelligence gets expressed. Here is a sample from the book:

> The village had a complicated network of passageways, carefully explored by the children. Because of their seclusion these passages were frequented by a variety of animals. Spiders sat near the suspended webs waiting for flies, and centipedes hunted in holes in the walls. Clumps of moss forced their way through cracks in the concrete and harbored all kinds of insects. These things were known to the children, and they became increasingly aware of the wealth of the area around the school as they became better observers within the school.
>
> The stories the older citizens told provided an ideal starting point for studying local history. I went to the Archives Department of the Leicestershire Museum and dug out as much material as I could about the town, looking for

exciting historical events. (One example: Ned Ludd, of Anstey, led a group of militant workers in what was probably the first protest against automation. Between 1811 and 1816 his group, the so-called Luddites, smashed stocking frames and other machinery in factories throughout the north of England.) I made copies of early documents and newspaper and gave them to Dorothy. With these and with the material the children collected, a useful and interesting historical reference collection was built up in the classroom.

The exploration of the area around the school was not confined to the streets and citizens of Anstey. The village brook passed near the school. Small groups of children would often spend time looking for animals, or the signs of animals, along the grassy bank. One group of boys took the portable tape recorder and when they returned played their tape for the class.

Peter: We have seen rat footprints or something at the bottom of the little inlet of the brook. Nigel has more or less waded in to get oyster shells--fresh water, of course.

Nigel: Clever Nigel has just found a cow's tooth in the water. At first I thought it was a bit of bone, but Peter has just informed me it's a cow's tooth, and we all think he's right.

Peter: We have just found a rat's hole--there's millions of them!

Nigel: Peter is right in saying a rat's hole--but it is not the normal rat hole in the bank --it's off the bank. It's very clear and you can't mistake it for anything but a water rat's hole.

I've just found an interesting hole--it's under a block of concrete...Michael's found one--it's a tremendous hole! It's just gone through the wire. It's a beautiful hole--it's all burrowed out wonderfully. If I go around the other way I can see a fantastic hole!

I remember the same kind of excitement discovering holes and other extraordinary crevices in this city when I was a child. But it was always after 3 p.m.

Another useful book that will probably find less distribution than it deserves, again because it is

published by an independent organization (the National Association for the Education of Young Children, 1834 Connecticut Avenue NW, Washington, D.C., 20009) is *Language in Early Childhood Education*, edited by Courtney Cazden. The book is composed of eight articles about oral language education and one about the task of learning to *read* by Carol Chomsky. The eight articles came out of examination of language programs for preschool children in the United States and England and an attempt to answer five questions: What assumptions about children's language development were implicit in these programs? What actually went on when these programs were used in classrooms? How were program objectives and classroom procedures seen by parents? What tests were used to measure children's gains in language effectiveness, and what aspects of language do they measure? What do research studies which compare several programs conclude about their relative effectiveness?

An imaginative reading of Maud Manoni's book, *The Backward Child and His Mother* (Pantheon), though it is a presentation of detailed case studies of her psychoanalytic work with children who have been diagnosed as hopelessly retarded, has a great deal to tell us about how even so-called normal children are made creatures of adults' fantasies and expectations. The French psychoanalyst explores in this book the networks of real and imaginary relationships in which "backward" children exist, and she finds that the illness is frequently a symptom of an existential and psychological reality which the child cannot otherwise express--that his "retardation" is a response to the expectations and fantasies of his parents (just as a schoolchild's failure, it has been shown, is often a response to the expectations and fantasies of his teacher). Among other things, the book raises some critical questions about the concept of intelligence. Should the concept of intelligence, Manoni asks, be situated on the level of efficiency? The books mentioned in this review, each in its own way, speak very clearly to this question.

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Workshop calendar

APRIL 1973 HIGHLIGHTS

Wednesday, April 4 and Thursday, April 5
SCIENCE WORKSHOPS with Fred Hawkins
Mountain View Environmental Center

Saturday, April 7
OPEN CLASSROOM [illegible]
to be held at [illegible]

Wednesday, April 11
MATH AND HATH GAMES workshop
with Victor [illegible]

Monday, April 30
DISCUSSION OF CHILDREN'S BOOKS
with Miriam Young, City College

The Workshop Center for Open Education will be open Easter week (April 16-20). Most of the staff will be in their classrooms. Special workshops for that week will be announced in our April calendar.

CONFERENCE ON OPEN EDUCATION AT CITY COLLEGE

Friday, April 27 and Saturday, April 28

Visits to Open Classrooms
Affiliated with City College Program

Workshops and Seminars

Guest Speakers

For registration information write to:

Prof. Beatrice Williams
Room 316, Compton Hall, City College
136th Street & Convent Avenue
New York, N.Y. 10031